

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1-14 (Canceled)

15. (New) A controlled structure copolymer comprising at least two parts A and B of different compositions, part A comprising ionic or potentially ionic units, wherein:

part A is an amphoteric or zwitterionic part, comprising:

cationic or potentially cationic units A_C ,

anionic or potentially anionic units A_A , and

optionally, hydrophilic and/or hydrophobic neutral units A_N ,

and/or

zwitterionic units A_Z ,

optionally, cationic or potentially cationic units A_C ,

optionally, anionic or potentially anionic units A_A , and

optionally, hydrophilic and/or hydrophobic neutral units A_N ,

part B is not an amphoteric or zwitterionic part.

16. (New) The copolymer as claimed in claim 15, wherein part B is a hydrophilic or hydrophobic neutral part comprising hydrophilic or hydrophobic neutral units.

17. (New) The copolymer as claimed in claim 15, having one of the following structures:

block copolymer, comprising at least two blocks, part A corresponding to one block, part B corresponding to another, part A optionally having a composition gradient, comb or grafted copolymer, comprising a backbone and side chains, with part A corresponding to the backbone and part B corresponding to side chains, or with part B corresponding to the backbone and part A corresponding to side chains, star or microgel copolymer, comprising a polymeric or nonpolymeric core, and peripheral polymeric chains, one part corresponding to the core, the other corresponding to the peripheral chains.

18. (New) The copolymer as claimed in claim 15, having a (block A)-(block B) diblock copolymer, a (block A)-(block B)-(block A) triblock copolymer or a (block B)-(block A)-(block B) triblock copolymer.

19. (New) The copolymer as claimed in claim 15, obtained by means of a controlled radical polymerization process.

20. (New) The copolymer as claimed in claim 15, wherein part B is a neutral part, and in that part A has a positive, negative or neutral average charge Q.

21. (New) The copolymer as claimed in claim 15, being in the form of a powder, in the form of a dispersion in a liquid, or in the form of a solution in a solvent.

22. (New) The copolymer as claimed in claim 15, wherein the units A_C derived from the monomers are:

N,N-(dialkylamino- ω -alkyl)amides of α,β -monoethylenically unsaturated carboxylic acids,

α,β -monoethylenically unsaturated amino esters,

vinylpyridines,

vinylamine,

vinylimidazolines,

monomers that are precursors of amine functions which give rise to primary amine functions by simple acid or base hydrolysis,

acryloyl- or acryloyloxyammonium monomers,

N,N-dialkyldiallylamine monomers, or

polyquaternary monomers.

23. (New) The copolymer as claimed in claim 22, wherein the units A_C derived from the monomers are N,N-dimethylaminomethylacrylamide, N,N-dimethylaminomethylmethacrylamide, 2-(N,N-dimethylamino)ethylacrylamide, , 2-(N,N-dimethylamino)ethylmethacrylamide, 3-(N,N-dimethylamino)propylacrylamide, 3-(N,N-dimethylamino)propyl methacrylamide, 4-(N,N-dimethylamino)butylacrylamide, 4-(N,N-dimethylamino)butylmethacrylamide, 2-(dimethylamino)ethyl acrylate (DMAA), 2-(dimethylamino)ethyl methacrylate (DMAM), 3-(dimethylamino)propyl methacrylate, 2-(tert-butylamino)ethyl methacrylate, 2-(dipentylamino)ethyl methacrylate, 2(diethylamino)ethyl methacrylate, N-vinylformamide, N-vinylacetamide, trimethylammonium propyl methacrylate chloride, trimethylammonium ethylacrylamide chloride, trimethylammonium ethylacrylamide bromide, trimethylammonium ethylmethacrylamide chloride, trimethylammonium

ethylmethacrylamide bromide, trimethylammonium butylacrylamide methyl sulfate, trimethylammonium butylmethacrylamide methyl sulfate, trimethylammonium propylmethacrylamide methyl sulfate (MES), (3-methacrylamidopropyl)trimethylammonium chloride (MAPTAC), (3-acrylamidopropyl)trimethylammonium chloride (APTAC), methacryloyloxyethyltrimethylammonium chloride, methacryloyloxyethyltrimethylammonium methyl sulfate, acryloyloxyethyltrimethylammonium chloride, 1-ethyl-2-vinylpyridinium bromide, 1-ethyl-2-vinylpyridinium chloride, 1-ethyl-2-vinylpyridinium methyl sulfate, 1-ethyl-4-vinylpyridinium bromide, 1-ethyl-4-vinylpyridinium chloride, 1-ethyl-4-vinylpyridinium methyl sulfate; N,N-dimethyldiallylammonium chloride (DADMAC); dimethylaminopropylmethacrylamide chloride, or N-(3-chloro-2-hydroxypropyl)trimethylammonium (DIQUAT).

24. (New) The copolymer as claimed in claim 15, wherein the units A_A derived from the monomers are α,β -ethylenically unsaturated carboxylic acids or the corresponding anhydrides, their water-soluble salts, precursors of carboxylate functions, which, after polymerization, give rise to carboxylic functions by hydrolysis, monomers having at least one sulfate or sulfonate function, their water-soluble salts, monomers having at least one phosphonate or phosphate function, the esters of ethylenically unsaturated phosphates, or their water-soluble salts.

25. (New) The copolymer as claimed in claim 24, wherein the units A_A are acrylic, methacrylic or maleic acids or anhydrides, fumaric acid, itaconic acid, N-methacroylalanine, N-acryloylglycine, tert-butyl acrylate, 2-sulfooxyethyl methacrylate, vinylbenzene sulfonic acid, allyl sulfonic acid, 2-acrylamido-2-methylpropane sulfonic acid, sulfoethyl acrylate or methacrylate, sulfopropyl acrylate or methacrylate, vinylphosphonic acid, the phosphates derived from hydroxyethyl methacrylate or the phosphates derived from polyoxyalkylene methacrylates.

26. (New) The copolymer as claimed in claim 15, wherein the units A_N derived from the monomers are:

vinylaromatic monomers,

vinyl halides, vinylidene halides,

C₁-C₁₂ alkylesters of α,β -monoethylenically unsaturated acids,

vinyl esters of saturated carboxylic acids, allyl esters of saturated carboxylic acids,

α,β -monoethylenically unsaturated nitriles containing from 3 to 12 carbon atoms,

α -olefins,

conjugated dienes,

monomers capable of generating polydimethylsiloxane chains,

hydroxyalkyl esters of α,β -ethylenically unsaturated acids,

α,β -ethylenically unsaturated amides,

α,β -ethylenically unsaturated monomers bearing a water-soluble polyoxyalkylene segment of the polyethylene oxide type,

α,β -ethylenically unsaturated monomers which are precursors of hydrophilic units or segments, which, once polymerized, can be hydrolyzed in order to give rise to vinyl alcohol units or polyvinyl alcohol segments,

vinylpyrrolidones, or

α,β -ethylenically unsaturated monomers of the ureido type.

27. (New) The copolymer as claimed in claim 26, wherein the units A_N are:

styrene, alpha-methylstyrene, vinyltoluene,

vinyl chloride, vinylidene chloride,

methyl, ethyl or butyl acrylates and methacrylates, 2-ethylhexyl acrylate,

vinyl or allyl acetates, propionates, versatates, stearates,

acrylonitrile, methacrylonitrile,

ethylene,

butadiene, isoprene, chloroprene,

hydroxyethyl or hydroxypropyl acrylates and methacrylates, glyceryl monomethacrylate,

acrylamide, N,N-dimethylmethacrylamide, N-methylolacrylamide,

polyethylene oxide α -methacrylates or α,ω -dimethacrylates, ω -behenyl

polyoxyethylene methacrylate, and ω -tristyrylphenyl polyoxyethylene methacrylate,

vinyl acetate,

vinylpyrrolidones, or

2-imidazolidinone-ethyl methacrylamide.

28. (New) The copolymer as claimed in claim 15, wherein the units A_Z derived from the monomers are:

sulfobetaine monomers, phosphobetaine monomers, or carboxybetaine monomers.

29. (New) The copolymer as claimed in claim 28, wherein the units A_Z are:

sulfopropyl dimethylammonium ethyl methacrylate, sulfopropyldimethylammonium propylmethacrylamide, sulfopropyl-2-vinylpyridinium, or

phosphatoethyl trimethylammonium ethyl methacrylate,

30. (New) The copolymer as claimed in claim 15, wherein part B comprises units derived from hydrophobic neutral monomers which are:

vinylaromatic monomers,

vinyl halides, vinylidene halides,

C_1 - C_{12} alkylesters of α,β -monoethylenically unsaturated acids

vinyl esters of saturated carboxylic acids, allyl esters of saturated carboxylic acids,

α,β -monoethylenically unsaturated nitriles containing from 3 to 12 carbon atoms,

α -olefins,

conjugated dienes, or

monomers capable of generating polydimethylsiloxane chains.

31. (New) The copolymer as claimed in claim 30, wherein the units of part B are derived from hydrophobic neutral monomers which are:

styrene, alpha-methylstyrene, vinyltoluene,

vinyl chloride, vinylidene chloride,

methyl, ethyl or butyl acrylates and methacrylates, 2-ethylhexyl acrylate,

vinyl or allyl acetates, propionates, versatates, stearates,
acrylonitrile, methacrylonitrile,
ethylene,
butadiene, isoprene, or chloroprene.

32. (New) The copolymer as claimed in claim 17, having a block copolymer structure, comprising at least two blocks, part A corresponding to one block, part B corresponding to another, part A having a homopolymer, if it comprises units A_z , random copolymer or composition gradient copolymer structure.

33. (New) A detergent composition, fabric care composition, a composition for cleansing, treating and/or protecting the skin and/or the hair, comprising a copolymer as defined in claim 15.